



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

Hz

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/489,954	01/24/2000	Pierre C. Fazan	303.434US2	6507

21186 7590 05/16/2002

SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.  
P.O. BOX 2938  
MINNEAPOLIS, MN 55402

EXAMINER

KANG, DONGHEE

ART UNIT	PAPER NUMBER
----------	--------------

2811

DATE MAILED: 05/16/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/489,954

Applicant(s)

FAZAN ET AL.

Examiner

Donghee Kang

Art Unit

2811

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 May 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 39-41, 44-56, 88 and 89 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 39-41, 44-56, and 88-89 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Acknowledgment*

1. Applicant's Amendment and Response to Paper No.16 has been entered and made of Record. Claims 42-43, 57, & 90-92 have been cancelled. Thus claims **39-41, 44-56, & 88-89** are pending in this Office Action.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

3. Claims **39-41, 45, & 47-56** are rejected under 35 U.S.C. 102(e) as being anticipated by Mihara et al. (US 5,561,307).

Regarding claims **39, 48, & 51**, Mihara teaches a dynamic access memory device comprising:

a capacitor which comprises (Fig.7):

a first portion (36) formed in an insulative layer (24); a second portion (a diffusion barrier, 22) overlying the first portion, wherein said insulative layer surrounds a sidewall of said second portion; and a third portion overlying said second portion, extending above and below an upper surface of said insulative layer, and including a recess,

wherein said first portion (PtSi or other similar conducting material) and said second portion (Ta) are different materials. See Col.10, line 56 – Col.11, line 63.

Regarding claims **40, 49, & 52**, Mihara teaches the second portion (Ta) and the third portion (Ti) are different materials.

Regarding claim **45**, Mihara teaches the second portion is a diffusion barrier layer prohibiting diffusion of atoms between said first and said second portions.

Regarding claim **47**, Mihara teaches the insulative layer surrounds a lower sidewall of said third portion.

Regarding claims **50 & 53**, Mihara teaches the first portion (PtSi) and the third portion (Pt) are different materials.

Regarding claim **54**, Mihara teaches the dynamic random access memory device further comprising:

a dielectric layer (72) overlying said third portion and a cell plate electrode (73) overlying said dielectric layer.

Regarding claim **55**, Mihara teaches the dynamic random access memory device further comprising a transistor.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims **44, 46, 56 & 88-89** are rejected under 35 U.S.C. 103(a) as being unpatentable over Mihara (US 5,561,307).

Regarding claims **46 & 56**, Mihara teaches a contact (36) formed in an insulative layer (24); a diffusion barrier (22) overlying the first portion, wherein said insulative layer surrounds a sidewall of said second portion; and an third portion (Pt, 71) overlying said second portion, extending above and below an upper surface of said insulative layer, and including a recess, said diffusion barrier portion configured to inhibit diffusion of atoms between said contact and said third portion. See Col.10, line 56 – Col.11, line 63.

Although, Mihara does not explicitly teach the third portion is an oxidation resistant layer, the third portion also serves as the oxidation resistant layer because the third portion consists of same material with claimed invention platinum (Pt). Thus, claimed structure is taken to be in the least obvious over Mihara.

Regarding claims **44 & 88-89**, Mihara teaches an electrode comprising (Fig.7): a first portion (36) formed in an insulative layer (24); a second portion (22) overlying the first portion, wherein said insulative layer surrounds a sidewall of said second portion; and a third portion (14A) overlying said second portion, extending above and below an upper surface of said insulative layer, and including a recess, wherein said first portion, said second portion, and said third portion respectively consist of PtSi, Tantalum (Ta) and platinum (Pt). See Col.10, line 56 – Col.11, line 63.

Mihara does not teach the first portion consists of polysilicon. However, it is well known in the art that polysilicon is used to as a contact electrode located between doped region and lower electrode of capacitor.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the contact electrode, *having the materials as claimed*, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

### **Conclusion**

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Donghee Kang whose telephone number is 703-305-9147. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Donghee Kang, Ph.D.  
May 8, 2002

Steven Loko  
Primary Examiner

